

**FY 2016 CHIEF OF NAVAL OPERATIONS
ENVIRONMENTAL AWARD COMPETITION
AWARD CATEGORY:
SUSTAINABILITY INDIVIDUAL/TEAM,
LARGE INSTALLATION**

INTRODUCTION

NBC is home to over 22,000 active duty military and 10,000 civilian personnel. The primary mission of Naval Base Coronado (NBC) is to support the Fleet, Fighter and Family, by providing the highest level of operational support and warfare training coordination to squadrons, ships, tenant commands and visiting units. We seek to provide the right support, at the right time, in the right amount, enabling operating forces to produce the right level of combat readiness.

NBC Sustainable Solid Waste program operates within the confines of some the most stringent regulatory compliance conditions for non-hazardous waste in the continental United States. A comprehensive Integrated Solid Waste Management Plan (ISWMP) is in place to manage NBC's complex non-hazardous solid waste disposal requirements and provide best management practices including diversion of recyclable materials through the Qualified Recycling Program (QRP) and integrated solid waste contract (refuse and recycling).

The eight NBC installations represent over 60,000 acres of land and water and are distributed over an area of 3,380 square miles in San Diego and Los Angeles Counties in southern California. A wide variety of non-hazardous materials are generated on the Installations from administrative spaces, aircraft carriers, housing, maintenance and trade shops. The materials that make up our non-hazardous municipal solid waste (MSW) stream range from organic waste such as food, cardboard and beverage containers to construction and demolition debris (C&D) such as concrete, asphalt, scrap metal, and clean soil. In addition we have a Navy owned and operated landfill under the jurisdiction of Los Angeles County that supports the mission of San Clemente Island (SCI) unlike the rest of NBC's 7 other installations, which fall under San Diego County jurisdiction.

The following individuals were integral to the management and sustainability of the Solid Waste Management Program and the innovative programs that resulted in net savings of \$6,493,259 to the operations at Naval Base Coronado between FY15 and FY16:

Name	Role	Employing Organization
Allyson Velasco	Sustainable Solid Waste Program Manager	NAVFAC SW - NBC
CWO3 Cory Worsham	Food Service Officer	Naval Base Coronado
Shannon LaCom	NBC FEAD Contract Officer	NAVFAC SW - NBC
Rory Van Nuys	NBC Coastal Campus FEAD Engineering Tech	NAVFAC SW - NBC
Shelli Ausler	NBC FEAD Performance Assessment Representative	NAVFAC SW - NBC

BACKGROUND

The base leadership is vital to the success of the Sustainable Solid Waste program on NBC. The Commanding Officer provides guidance and outreach to tenant commands on integration of the non-hazardous solid waste and recycling requirements with the military mission. He also guides the management direction with the Public Works Officer (PWO) and the Installation Environmental Program Director (IEPD). The IEPD, who reports to the PWO, manages the NBC Public Works Office, Environmental Division whose experienced and capable staff manages all aspects of NBC's environmental resources.

The Sustainable Solid Waste program (SSW) is administered by one Solid Waste Media Manager (SWMM) and three recycling scrap personnel who report to Public Works Officer, in coordination with FEAD support for construction waste management and contracting support.

The Commanding Officer of NBC is responsible for eight geographically separate installations including Naval Air Station North Island (NASNI), Naval Amphibious Base Coronado (NAB), Silver Strand Training Complex-South (SSTC-S), Naval Outlying Landing Field Imperial Beach (NOLF IB), Remote Training Site Warner Springs (RTSWS), Mountain Warfare Training Camp Michael Monsoor (CMM), Camp Morena, and San Clemente Island (SCI) Range Complex (SCIRC). While the sheer depth and breadth of the installations geographically and operationally poses many challenges, once processes are set in place, it provides for measurable successes with noticeable results, which allows the NBC model to be used as an ideal testing ground for projects that can be scaled to fit other large diverse installations as well as smaller complexes. NBC spent the past five years learning to turn seemingly insurmountable challenges into repeatable successes. A key tenant of this success is the initiatives involving all levels of the work force in finding solutions. Further, a robust training and outreach program empowers all military and civilians staffers to be natural ambassadors for the program

The comprehensive ISWMP is in place to manage NBC's complex non-hazardous solid waste disposal requirements and best management practices including the diversion of recyclable materials ranging from office paper, cardboard, tree trimmings and food waste from the municipal solid waste stream (MSW) as well as wood waste and clean fill soil generated from constructions and demolition projects. It was revised and finalized in Sept 2014. Our program mission is to provide policy, guidance, and direction to institutionalize and execute sustainable solid resource and waste management practices throughout NBC for all activities that generate non-hazardous solid waste. We utilize the DoD waste management Hierarchy - Reduce, reuse, recycle, and throw away as a last resort. Implementation of the SSW program and Qualified Recycling Program (QRP) is tracked through monthly metrics reporting, annual P2 data call and through the NBC Environmental Management System (EMS). Our goal, as outlined in the OPNAV 5090.1, is to reduce municipal solid waste (MSW) by 50% and construction/demolition (C&D) debris by 60% giving us an overall diversion rate of 55% by FY2015. Since FY2014 our overall diversion of MSW and C&D has risen above and beyond the DoD goals: **FY 2014 40.75% diversion, FY 2015 70.78% diversion and FY2016 64.0%.**

Since FY15, our successes are attributed to the implementation of the ISWMP as well as new outreach to the galleys as well as FEAD departments during major MILCON projects both allowing for new types of waste management and reduction. To reach those goals, there were

many challenges that needed to be overcome. After goals were set in place, the Sustainable Solid Waste Program Manager had to analyze waste streams to determine processes and procedures that could be put into place to reach not only the DoD goals but any and all emerging regulations. Contract needed to be modified and oversight strategies by PARs and Engineering Technicians on the ground were critical to ensuring new requirements were put into place and procedures were being implemented and reported appropriately in the field. None of this would have been able to have been completed without support of installation leadership from the CO and XO as well as the N-9 and Public Works Officer. When issues arose, it was a team effort between the program manager, FEAD, and food services to determine root cause and provide additional training, support, or resources to ensure all requirements were met. Constant engagement and teamwork is the key to this team's successes.

Program Summary

The SSW program proudly serves 142 Tenant Commands at eight geographical locations. Through consistent partnering internally with the NBC & Coastal Campus FEAD offices, MWR, NASNI & NAB Galleys, NAVFAC Public Works Dept., DeCA, and NEX as well as externally with the City of San Diego. The Installation has gone above and beyond to comply with all federal, state and local laws and regulation for non-hazardous municipal solid waste disposal and recycling. Our goal is and will continue to be identifying the most environmentally-friendly and economically-viable solutions to reduce waste for NBC while promoting the diversion of recyclable materials through the Installation's Leadership utilizing the policy of the DoD waste management Hierarchy - Reduce, reuse, recycle, and throw away as a last resort which promotes resourcefulness over wastefulness.

Training for tenant commands is an on-going effort and provided in a few different ways. The Solid Waste Manager and Environmental Director attend tenant leadership meetings to provide information regarding service contract updates and progress for meeting diversion goals set out by the federal government and state. Additionally, the Solid Waste Manager provides training to the Facility Management Specialist and offers one-on-one training for new personnel reporting aboard the Installation which promotes environmental stewardship. Due to the inclusion of Solid Waste Reduction as one of the significant aspects within the Installation's Environmental Management System, waste- reduction is highlighted in additional quarterly trainings and in-doc trainings within the overall environmental quality training program.

ACCOMPLISHMENTS

Organics Composting:

In FY 2014 the California (CA) State Assembly Bill passed legislation (AB1826) for mandatory organics recycling to prevent organic materials from entering the landfills. AB1826 is an amendment to *The Integrated Waste Management Act* (AB939) and is designed to enforce regulation to ensure that NBC will arrange for traditional recycling and organic waste recycling programs starting in 2016.

By taking a holistic approach to the new compliance requirements and partnering internally with the FEAD, DeCA, the N-9 Director for the Installation in conjunction with community outreach with the City of San Diego, NBC has successfully complied with the state

legislation to divert the large sources of organic waste from the landfill. This was accomplished by implementing additional practices to the existing recycling program for the Installation; food donation provided to the San Diego Food Bank by DeCA; updating language in the grounds maintenance contracts and construction/demolition contracts; and integrating recycling into the existing refuse contract. These modifications were set in place to ensure recyclable materials such as tree trimmings, grass clippings, clean fill soil and food waste generated aboard the Installation are composted.

Per Executive Order (EO) 13693 and in compliance with AB1826, Figure 1 shows the solid waste diversion rates from FY14 through FY16. In FY15, there was a significant diversion of clean fill soil from a large demolition project of the old warehouse gym. Since FY 2014, there has been a **cost avoidance of \$723,919.46 in landfill tipping fees** due to diversion strategies at NBC.

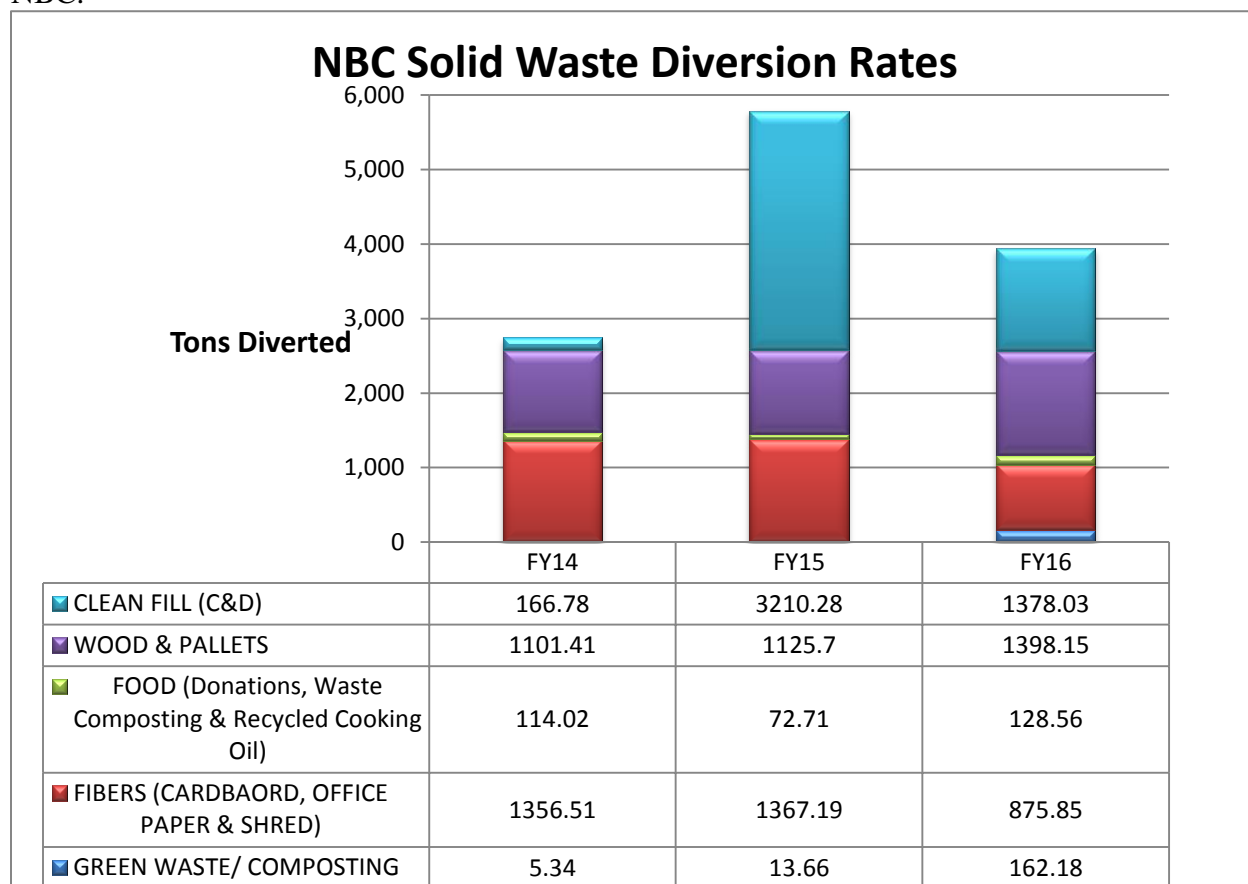


Figure 1. Solid Waste diversion rates over the past 3 years for organic materials.

As of FY 2016 the NASNI and NAB Galleys received training from the City of San Diego's Food Waste Recycling Program at the Miramar Greenery to divert food waste generated in the kitchen prep areas and sculleries. This process requires that the Galleys already successfully divert recyclable materials generated (metals cans, office paper, cardboard, plastic containers, etc.), color coded, labeled containers inside the kitchen, scullery and office spaces, in addition to signage. Depicted in the Figure 2, food waste scraps are containerized in labeled container to avoid contamination, once the containers are full they are taken to a large receptacle

provided by our refuse hauler and hauled to the Miramar Greenery to be composted. Since beginning this process in January FY 2016, 128.56 tons of food waste was composted. The implementation of food waste recycling is the first of its kind for the Navy. According to City of San Diego emissions studies: “Each one ton of food composted avoids 0.42 Metric Tons of CO₂.”

In one year, NBC has reduced methane gas emissions by nearly 54 Metric Tons of CO₂ by implementing a food waste recycling program.



Figure 2. Food waste diversion process from separation at the Galley Kitchen to the landfill for composting, which will then be offered to local San Diego residents as topsoil.

During the implementation, NBC also participated in a food waste study conducted by NAVFAC EXWC (Expeditionary Warfare Center) to track information regarding meal services. The information gathered from this 8 month study is being used to develop and implement food waste composting throughout the Navy. This eye opening experience allowed the Galleys to reduce waste being generated and further streamline their process for food preparation. By separating their food waste, weighing each container and logging the weights prior to disposal in outdoor container they could better visualize the waste being generated. At the beginning of this process the Galley was composting over 10 tons a month and now they are composting less than 7 tons a month. The Galley has implemented single use packets and discontinued use of bulk purchasing for items like salad dressing, mayonnaise and other condiments. This reduction in waste has saved the Galleys \$40,000.00 in FY 2016.

The significance of the food waste, may seem small in the overall view of Figure 1, however, as we move forward it is important to note the significant change in the way food is managed in the galley. January of FY16 is the first time NBC utilized food waste composting. Figure 3 indicates food waste diversion over the past 3 years. While this number is relatively close to the FY14 number, there was a large turnover of waste in September 2014, prior to the change in the fiscal year; we could be an indication of the drastic difference between 2014 and 2015. As the years progress, we see this number increasing as we accumulate more data and start adding other food service providers such as base restaurants into the program.

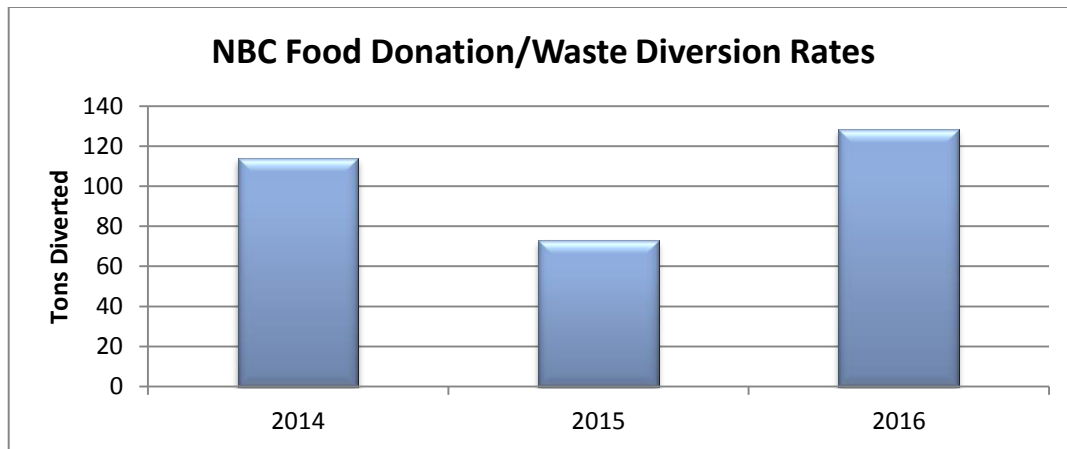


Figure 3. Food waste diversion rates over the past 3 years. July 2016 is when composting started at NBC, which will only increase the trend in out years.

Annual Electronic Waste and America Recycles Day Events:

Annual E-Waste events have resulted in over 97tons of electronics being diverted and saved sailors time and material by providing a one stop drop off location at NBC.

Each spring the SSW program coordinates electronic waste (E-Waste) recycling with the NBC Enviromental Department and DLA Disposition Services during the week of Earth Day as a way to

promote environmental stewardship for the Tenant Commands at NBC. By offering this annual event we are directly supporting outreach to the Commands to promote proper disposal and recycling of electronic equipment that has reached the end of its life cycle. This affords the opportunity for Commands to turn in their old electronics on the Installation at a dedicated location versus setting an appointment with DLA Dispositions to perform the turn-in. In FY 2014 32.63 tons of E-waste was recycled, FY 2015 40.89 tons of e-waste was recycled and in FY 2016 24.37 tons of e-waste was recycled.

Construction and Demolition Reutilization:

SSW Program Manager supports the active duty and civilian personnel by reviewing solid waste management plans (SWMP) for all C&D (construction and demolition) projects that occur in-house or by Contractors aboard the Installation. On average the Program Manager reviews over 300 SWMP each year. By reviewing the SWMP's for all work occurring, it provides an opportunity to ensure materials that qualify for recycling do not end up in the Cities landfill. In FY16 we achieved a **92.87% diversion rate** from all C&D projects through the recycling of materials such as concrete, asphalt, clean soil and drywall. The disposal **cost avoidance for FY 2016 was \$3,866,431.50 with an additional cost savings of an estimated \$800,000 in material** that is not needed to be procured for all of the road base on the MILCON Projects. The photos below (figure 4&5) reflect the reutilization of concrete being generated from the SSTC-S Coastal Campus project Bunker demolition. The bunker was over 600 feet long and the pulverized concrete will be used as class II base materials to build the roads around the new complex.



Figure 4: World War II Bunker that is in the process of demolition at the NBC Coastal Campus site. This bunker demolition material was collected onsite to be pulverized for base material for all of the roads on the site.



Figure 5: Bunker debris that has been pulverized to become base material for roads on the site.

RECENT AWARDS:

NBC received the FY 2014 Federal Green Challenge Award from the Environmental Protection Agency (EPA) for “National Highest Improvement by Targeted Area” for increasing organic composting. In FY 2016 NBC received the “Commercial Food Waste Scrap Composting Program” Seal of Participation from the City of San Diego for the NAB & NASNI Galleys. NBC is the only Naval complex to receive this in the Southwest Region.

MISSION ENHANCEMENT:

Through a proactive, holistic approach and partnering with internal Navy and external community outreach the Sustainable Solid Waste (SSW) Program is able to provide support to the Tenant Commands aboard NBC. We assist Commands with every aspect of disposal from training, to the oversight of contracts, recycling collections to disposal of Trade Security Controlled items through DRMO. This program and its initiatives are resulting in net saving of \$6,493,259 that can then be diverted to support critical training missions. The NBC Environmental and Sustainability Program exemplifies excellence in support to the Fleet compatible with sound environmental stewardship and an abiding belief that a healthy environment is fundamental to the success of the Navy mission.